

Post-Visit Report for AGATE FOSSIL BEDS NATIONAL MONUMENT Mammal Inventory
Small Terrestrial Mammal Inventory – Summer 2002

Agate Fossil Beds National Monument was surveyed for small, terrestrial mammals during the period from Monday, 16 September 2002 to Wednesday, 18 September 2002. Sherman live trap transects were established in each of the two main habitats (grassland and riparian/willow) to provide a minimum of 1000 trap nights across the site.

Trapping Effort

Six Sherman live trap transects were set at this site:

- RIP-1 (80 traps) eastern strand of cottonwood/willow on West end of Rd 306.
- RIP-2 (80 traps) western strand of cottonwood/willow on West end of Rd 306.
- RIP-3 (120 traps) along river just south of housing (east end of park).
- GRA-1 (80 traps) starts at rock outcrop straight up (south, across Rd 306) from RIP-2 and proceeds southeast and then east, paralleling the fenceline toward the end of transect.
- GRA-2 (80 traps) along strip of sagebrush running between river and Rd 306, just east of Rd 308.
- GRA-3 (120 traps) east-west transect close to northern edge of old potato field between Rds 312 and 313, north of the highway running through the park.

These transects were run for 2 nights, producing 1120 total live trap nights for the site.

Trapping Results

A Habitat / Trap Type Summary is provided below. Table 1 (a separate Excel attachment) provides detailed information about species and capture locations.

Riparian/Willow Shermans

Chaetodipus hispidus -- 9
Microtus ochrogaster – 6
Reithrodontomys megalotis -- 4
Peromyscus leucopus— 1
Peromyscus maniculatus—46

Grassland Shermans

Chaetodipus hispidus -- 3
Dipodomys ordii – 13
Onychomys leucogaster -- 1
Perognathus flavus – 1
Peromyscus maniculatus—41
Spermophilus tridecemlineatus – 1

Other Observations / Collections

Shed antlers of mule deer and white tailed deer were observed at RIP-2 and GRA-3 respectively. Pocket gopher mounds were abundant and probably represent *Geomys bursarius*, the plains pocket gopher. A coyote was observed north of the river, across from Rd 308. Rabbits (cottontails; *Sylvilagus* spp.) were observed at a distance around the visitor's center. A short-horned lizard (*Phrynosoma douglassi brevirostre*) was caught along GRA-1.

Alphabetical List of Mammals Captured/Observed

Chaetodipus hispidus – Hispid Pocket Mouse
Dipodomys ordii – Ord's Kangaroo Rat
Microtus ochrogaster – Prairie Vole
Onychomys leucogaster – Grasshopper Mouse
Perognathus flavus – Silky Pocket Mouse
Peromyscus leucopus – White-footed Mouse
Peromyscus maniculatus -- Deer Mouse
Reithrodontomys megalotis – Western Harvest Mouse
Spermophilus tridecemlineatus – Thirteen-lined Ground Squirrel

Amphibians or Reptiles Captured/Observed

Phrynosoma douglassi brevirostre -- Eastern Short-horned Lizard

**COORDINATE
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Trapping Location	UTM Zone	Easting	Northing
GRA - 1	13 T	0601049	4696508
GRA - 2	13 T	0601810	4696803
GRA - 3	13 T	0601575	4697799
RIP - 1	13 T	0601234	4696754
RIP - 2	13 T	0601109	4696845
RIP - 3	13 T	0604538	4698029

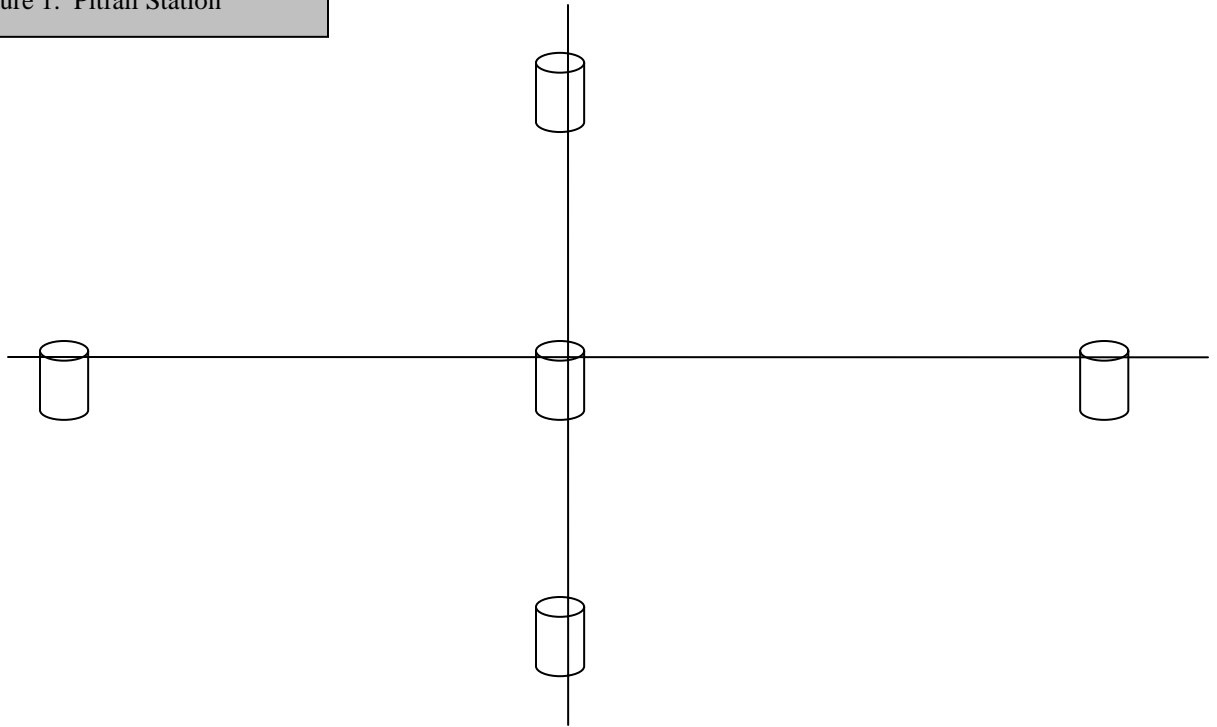
Post-Visit Report for DEVILS TOWER NATIONAL MONUMENT Mammal Inventory
Small Terrestrial Mammal Inventory – Summer 2002

Devils Tower was surveyed for small, terrestrial mammals during the period from Wednesday, 17 July to Monday, 22 July 2002. Three pitfall stations were set in each of the major habitat types (Ponderosa pine, riparian deciduous woodland, and grassland) as described in the inventory protocol, for a total of 9 pitfall stations. These stations were run for four consecutive nights, from 18 July through the night of 21 July. Sherman live trap transects were established in each of the primary habitats (ponderosa pine, grassland, riparian woodland) to provide a minimum of 500 trap nights per habitat (details below) with the exception of the riparian habitat. Traps along the Belle Fourche (riparian habitat) were retrieved one night early (resulting in only 400 trap nights) due to heavy rains and the threat of losing traps due to rising water. A transect of 40 traps was also placed in the prairie dog town.

Trapping Effort

Three pitfall stations (Figure 1), each consisting of five 4-gallon buckets and 20m of 10" fencing, were run in each habitat for 4 consecutive nights, providing a total of 60 trap nights per habitat for pitfalls.

Figure 1. Pitfall Station



Two Sherman live trap transects set in ponderosa pine (PP-1 and PP-2), both consisting of 40 stations (2 traps per station for a total of 80 traps), were run for 3 consecutive nights, while a third ponderosa pine transect of 20 stations (PP-3; 40 traps) was run for 2 consecutive nights. Total live trap nights in ponderosa pine was 560. PP-1 was located just south of the “end of road turnaround” on West road and ran parallel to the west park boundary, at a distance of about 100m from the fence. PP-2 was placed in a roughly north-south direction, proceeding upslope northeast of the Tower. This area had been hand-thinned and slash piles were present. PP-3 was placed to the inside of the main road, between the road and the drainage in the area northwest of the tower (northern part of Graham Unit).

Two grassland transects, consisting of 40 and 80 traps (GRA-1 and GRA-2 respectively) were run for 3 nights, while 2 other grassland transects of 40 traps each (GRA-3 and GRA-4) were run for 2 consecutive nights. Total live trap nights in grassland habitat was 520. GRA-1 was in the grassland area on the south side of West road. GRA-2 was in the prairie area northeast of the Tower. GRA-3 was located in the sage shrubland area below the mesa in the southwest corner of the park. GRA-4 was located in the sage and cottonwood area close to the private campground next to the main entrance to the park.

One riparian transect of 200 traps along the park side of the Belle Fourche River was run for two consecutive nights before being pulled due to the threat of rising waters. Total live trap nights in riparian habitat was 400.

A 40-trap transect was run in the prairie dog town for three nights. Total Sherman live trap nights for the site was 1600.

Pitfall stations were associated with Sherman trap transects, or located separately, as follows:

<u>Pitfall Station</u>	<u>Sherman Transect</u>
PON-PF1	PP-1
PON-PF2	In slash area W/NW of Tower; north of Red Beds
Trail	
PON-PF3	PP-3
RIP-PF1	5m south of deer enclosure in drainage just west of West Road
RIP-PF2	In trees on south side of bridge over the Belle Fourche; west side of river.
RIP-PF3	Tarpot drainage; ~ 100m from road
GRA-PF1	~150m south of hiking trail leading from parking lot
on	
	West Road; 320° radial from Tower.
GRA-PF2	GRA-4
GRA-PF3	GRA-3

Trapping Results

A Habitat / Trap Type Summary is provided below. Table 1 (a separate Excel attachment) provides detailed information about species and capture locations.

Ponderosa Pine Shermans

Peromyscus leucopus—12

Peromyscus maniculatus—18

Neotoma cinerea—12

Grassland Shermans

Peromyscus leucopus—2

Peromyscus maniculatus—20

Tamias minimus—1

Microtus ochrogaster—3

Reithrodontomys megalotis—1

Riparian Shermans

Spermophilus tridecemlineatus—5

Peromyscus leucopus—8

Peromyscus maniculatus—3

Microtus ochrogaster—1

Microtus pennsylvanicus—4

Prairie Dog Town Shermans

Peromyscus maniculatus—3

Ponderosa Pine Pitfalls

Sorex cinereus / *haydeni*—1

Peromyscus maniculatus—1

Grassland Pitfalls

Peromyscus maniculatus—2

Tiger salamander—1

Plains spadefoot toad—1

Riparian Pitfalls

Zapus hudsonius—2

Sorex cinereus / *haydeni*—5

Peromyscus leucopus—2

Milksnake—1

Other Observations / Collections

A skull of a mink, *Mustela vison*, was found near the Sherman transect in the sagebrush/grasslands at the base of the plateau in the southwest corner of the park (GRA-3). A bobcat (*Lynx rufus*) was observed along the Belle Fourche just south of the prairie dog town. A red squirrel, *Tamiasciurus hudsonicus*, was photographed near the NPS apartment complex. Nuttall's cottontail rabbits, *Sylvilagus nuttalli*, were observed at the NPS apartment complex and near the entrance to the park. Mounds produced by pocket gophers, *Geomys bursarius* or *Thomomys talpoides* (probably the latter), were observed throughout much of the park. A second trapping session at Devils Tower will include gopher live traps to confirm the identity of the pocket gophers at this site. White-tailed deer (*Odocoileus virginianus*) were observed throughout the park.

Alphabetical List of Mammals Captured/Observed at Devils Tower

Geomys bursarius / *Thomomys talpoides* * -- Plains Pocket Gopher / Northern Pocket Gopher

Lynx rufus -- Bobcat

Microtus ochrogaster -- Prairie Vole

Microtus pennsylvanicus -- Meadow Vole

Mustela vison -- Mink

Neotoma cinerea -- Bushy-tailed Woodrat

Peromyscus leucopus -- White-footed Mouse

Peromyscus maniculatus -- Deer Mouse

Reithrodontomys megalotis -- Western Harvest Mouse

Sorex cinereus / *haydeni* **-- shrew

Spermophilus tridecemlineatus -- Thirteen-lined Ground Squirrel

Sylvilagus nuttalli -- Nuttall's Cottontail Rabbit

Tamiasciurus hudsonicus -- Red Squirrel

Tamias minimus -- Least Chipmunk

Thomomys talpoides * -- Northern Pocket Gopher

Zapus hudsonius -- Meadow Jumping Mouse

*Identity to be confirmed in second trapping session.

** Identity to be confirmed by after skull is cleaned.

Amphibians Captured/Observed

Milksnake -- *Lampropeltis triangulum*

Tiger Salamander -- *Ambystoma tigrinus*

Northern Leopard Frog – *Rana pipiens*

<u>Trapping Location</u>		<u>Coordinates</u>
PON-PF3	13T	05218954937760
PP-3	13T	05218954937760
PON-PF2	13T	05224164937970
PP-1	13T	05214794938318
PON-PF1	13T	05214794938318
GRA-1	13T	05215594938344
RIP-PF1	13T	05218594938033
PP-2	13T	05228234938354
GRA-2	13T	05228194938400
GRA-PF1	13T	05221024938360
GRA-PF2	13T	05236904937491
GRA-4	13T	05236904937491
RIP-PF2	to be acquired during subsequent visit	
GRA-PF3	13T	05220134936410
GRA-3	13T	05220134936410
RIP-PF3	to be acquired during subsequent visit	

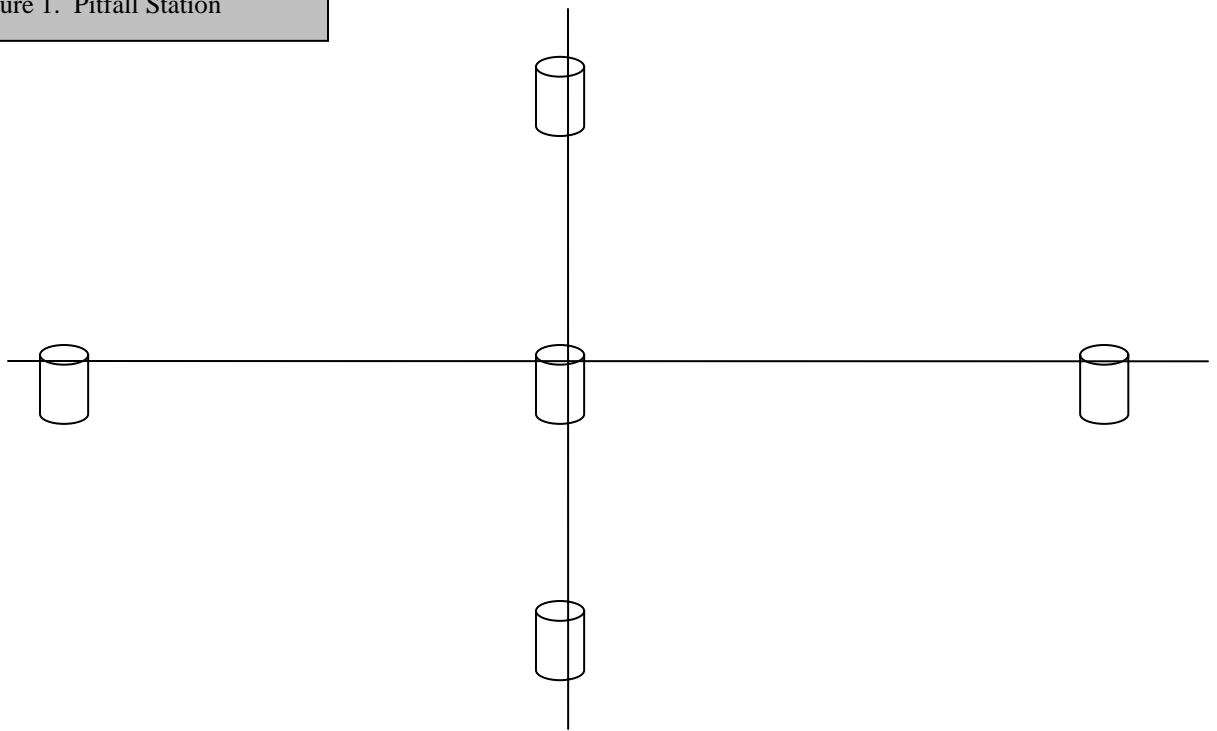
Post-Visit Report for FORT UNION TRADING POST NHS Mammal Inventory
Small Terrestrial Mammal Inventory – Summer 2002

Fort Union National Trading Post National Historic Site was surveyed for small, terrestrial mammals during the period from Monday, 5 August 2002 to Friday, 9 August 2002. Three pitfall stations were set in each of the major habitat types (riparian deciduous woodland and grassland) as described in the inventory protocol, for a total of 6 pitfall stations. These stations were run for four consecutive nights, from 5 August through the night of 8 August. Sherman live trap transects were established in each of the habitats to provide a minimum of 1000 trap nights across the site.

Trapping Effort

Three pitfall stations (Figure 1), each consisting of five 4-gallon buckets and 20m of 10" fencing, were run in each habitat for 4 consecutive nights, providing a total of 60 trap nights per habitat for pitfalls.

Figure 1. Pitfall Station



Three Sherman live trap transects were set in riparian deciduous woods. RIP-1, which was located along the willows of the old river channel that is southeast of the maintenance building, comprised 40 traps. RIP-2 (80 traps) and RIP-3 (40 traps) were located in later successional woodlands west of the Fort. These three transects were run for 3 nights, producing 480 total live trap nights in riparian woodland.

Six grassland transects were ultimately run, five for three nights, and the sixth (Bodmer Overlook) for two nights. G-1, was located in the rushes of the old river channel southeast of the maintenance building, and comprised 30 traps. G-2 (30 traps) was located in the brome/alfalfa on the first tier north of the old river channel (north of G-1). G-3 (30 traps) was placed in the crested wheatgrass on the second tier above the old river channel (north of G-2); and G-4 (30 traps) was in the brome along the north edge of this same tier. G-5 (40 traps) ran parallel to the highway in the restored prairie area northeast of the Fort. G-1 through G-5 were run for 3 nights. G-6 (40 traps) was established on the Bodmer Outlook which is north of the railroad tracks, and was run for two nights. Total live trap nights in grassland habitats was 560.

Total live trap nights for the entire site was 1040.

Pitfall stations were proximal to transects as follows:

<u>Pitfall Station</u>		<u>Sherman Transect</u>
PF-1 (grassland)		G-2
PF-2 (grassland)		G-1
PF-3 (riparian woodland)	RIP-1	
PF-4 (grassland)		G-5
PF-5 (riparian woodland)		RIP-3
PF-6 (riparian woodland)		RIP-2

Trapping Results

A Habitat / Trap Type Summary is provided below. Table 1 (a separate Excel attachment) provides detailed information about species and capture locations.

Riparian Woodland Shermans

Blarina brevicauda -- 4
Sorex cinereus/haydeni -- 5
Peromyscus leucopus— 58
Peromyscus maniculatus—88
Reithrodonomys megalotis -- 5
Clethrionomys gapperi – 62
Microtus pennsylvanicus – 16
Mus musculus – 1

Grassland Shermans

Spermophilus richardsonii -- 2
Spermophilus tridecemlineatus – 23
Perognathus fasciatus -- 1
Peromyscus leucopus—4
Peromyscus maniculatus—49
Onychomys leucogaster -- 4
Reithrodontomys megalotis—2
Clethrionomys gapperi - 1
Microtus pennsylvanicus -- 4

Riparian Woodland Pitfalls

Sorex cinereus / haydeni—16
Blarina brevicauda -- 1
Peromyscus maniculatus—2
Clethrionomys gapperi – 10
Microtus pennsylvanicus -- 11
Mus musculus – 2
Unidentified frog (voucher submitted) – 1
Plains Spadefoot Toad – 1
Western Chorus Frog – 1
Northern Leopard Frog -- 1

Grassland Pitfalls

Sorex cinereus/haydeni – 4
Perognathus fasciatus -- 1
Peromyscus maniculatus—2
Microtus pennsylvanicus -- 1
Northern Leopard Frog -- 1

Other Observations / Collections

Porcupines (*Erethizon dorsatum*) were observed primarily west of the visitor's parking lot. Pocket gopher mounds were observed throughout the grassland areas of the park. Subsequent trapping with gopher live traps will be used to verify species identity. Spadefoot toads were observed crossing the road from the parking lot to the Fort. A Western Plains Garter Snake was photographed close to Riparian transect #2 (below visitor's parking lot in riparian woodland).

Alphabetical List of Mammals Captured/Observed at Fort Union

Blarina brevicauda – Short-tailed shrew
Clethrionomys gapperi – Red-backed vole
Erethizon dorsatum -- Porcupine
Geomys bursarius / *Thomomys talpoides* * -- Plains Pocket Gopher / Northern Pocket Gopher
Microtus pennsylvanicus – Meadow Vole
Mus musculus – house mouse
Onychomys leucogaster – Grasshopper mouse
Perognathus fasciatus – Olive-backed pocket mouse
Peromyscus leucopus – White-footed Mouse
Peromyscus maniculatus -- Deer Mouse
Reithrodontomys megalotis -- Western Harvest Mouse
Sorex cinereus / *haydeni* ** – shrew
Spermophilus tridecemlineatus – Thirteen-lined Ground Squirrel
Spermophilus richardsonii – Richardson's Ground Squirrel
Thomomys talpoides/*Geomys bursarius* * -- Northern Pocket Gopher
Zapus hudsonius – Meadow Jumping Mouse

*Identity to be confirmed in second trapping session.

** Identity to be confirmed after skull is cleaned.

Amphibians Captured/Observed

Unidentified frog submitted as voucher
Northern Leopard Frog – *Rana pipiens*
Plains Spadefoot Toad
Western Chorus Frog
Western Plains Garter Snake

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Trapping Location	Zone	UTM Easting	Northing
GRA - PF1	13 T	0572286	5316367
GRA - PF2	13 T	0572424	5316215
GRA - PF4	13 T	0572170	5316836

GRA - PF3	13 T	0572425	5316171
GRA - PF5	13 T	0571141	5316769
GRA - PF6	13 T	0571151	5316725
GRA - 1	13 T	0572424	5316214
GRA - 2	13 T	0572402	5316299
GRA - 3	13 T	0572379	5316366
GRA - 4	13 T	0572268	5316478
GRA - 5	13 T	0572170	5316836
GRA - 6	13 T	0571827	5317802
RIP - 1	13 T	0572425	5316171
RIP - 2	13 T	0571151	5316725
RIP - 3	13 T	0571151	5316725

Post-Visit Report for KNIFE RIVER INDIAN VILLAGES NHS Mammal Inventory
Small Terrestrial Mammal Inventory – Summer 2002

Knife River Indian Villages National Historic Site was surveyed for small, terrestrial mammals during the period from Friday, 9 August 2002 to Sunday 11 August 2002. Sherman live trap transects were established in each of the two main habitats (forested floodplain and mixed-grass prairie) to provide a minimum of 1000 trap nights across the site.

Trapping Effort

Eight Sherman live trap transects were set at this site; 3 (RIP-1 through RIP-3) in the forested floodplain, 1 (G-2) along a seasonal creek in the western portion of the site, and 4 (G-1, and G-3 through G-5) in various conditions of mixed-grass prairie:

- RIP-1 (80 traps) open woodlands inside Loop Trail in the SE corner of the park.
- RIP-2 (80 traps) more closed woodland inside the S end of the loop in the north end of the park
- RIP-3 (80 traps) mature forest in hairpin part of loop in N end of park
- G-1 (80 traps) running generally upslope (N) in the native prairie at the N end of the park
- G-2 (20 traps) along an intermittent stream just south of the native prairie area
- G-3 (80 traps) in restored prairie southeast of the maintenance facility
- G-4 (40 traps) along Knife River near fishing hole gate
- G-5 (40 traps) between woods and river just south of the hairpin in N end of park
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These transects were run for 2 nights, producing 1000 total live trap nights for the site.

Trapping Results

A Habitat / Trap Type Summary is provided below. Table 1 (a separate Excel attachment) provides detailed information about species and capture locations.

Forested Floodplain Shermans

Blarina brevicauda -- 2
Sorex cinereus/haydeni -- 2
Peromyscus leucopus— 79
Peromyscus maniculatus—16
Clethrionomys gapperi – 22
Microtus pennsylvanicus – 1
Zapus hudsonius - 6

Grassland Shermans

Spermophilus tridecemlineatus – 10
Peromyscus leucopus— 8
Peromyscus maniculatus—17
Microtus pennsylvanicus -- 1

Other Observations / Collections

None at this time.

Alphabetical List of Mammals Captured/Observed at Knife River

Blarina brevicauda – Short-tailed shrew

Clethrionomys gapperi – Red-backed vole
Microtus pennsylvanicus – Meadow Vole
Peromyscus leucopus – White-footed Mouse
Peromyscus maniculatus -- Deer Mouse
Sorex cinereus / *haydeni* **-- shrew
Spermophilus tridecemlineatus – Thirteen-lined Ground Squirrel
Zapus hudsonius – Meadow Jumping Mouse

** Identity to be confirmed after skull is cleaned.

Amphibians Captured/Observed

None at this time.

COORDINATE S

Trapping Location	UTM Zone	Easting	Northing
G - 1	13 T	0319576	5249529
G - 2	13 T	0319699	5249352
G - 3	13 T	0319517	5247927
G - 4	13 T	0319835	5246114
G - 5	13 T	0319909	5249764
RIP - 1	13 T	0320717	5244964
RIP - 2	13 T	0319895	5248176
RIP - 3	13 T	0319663	5249937

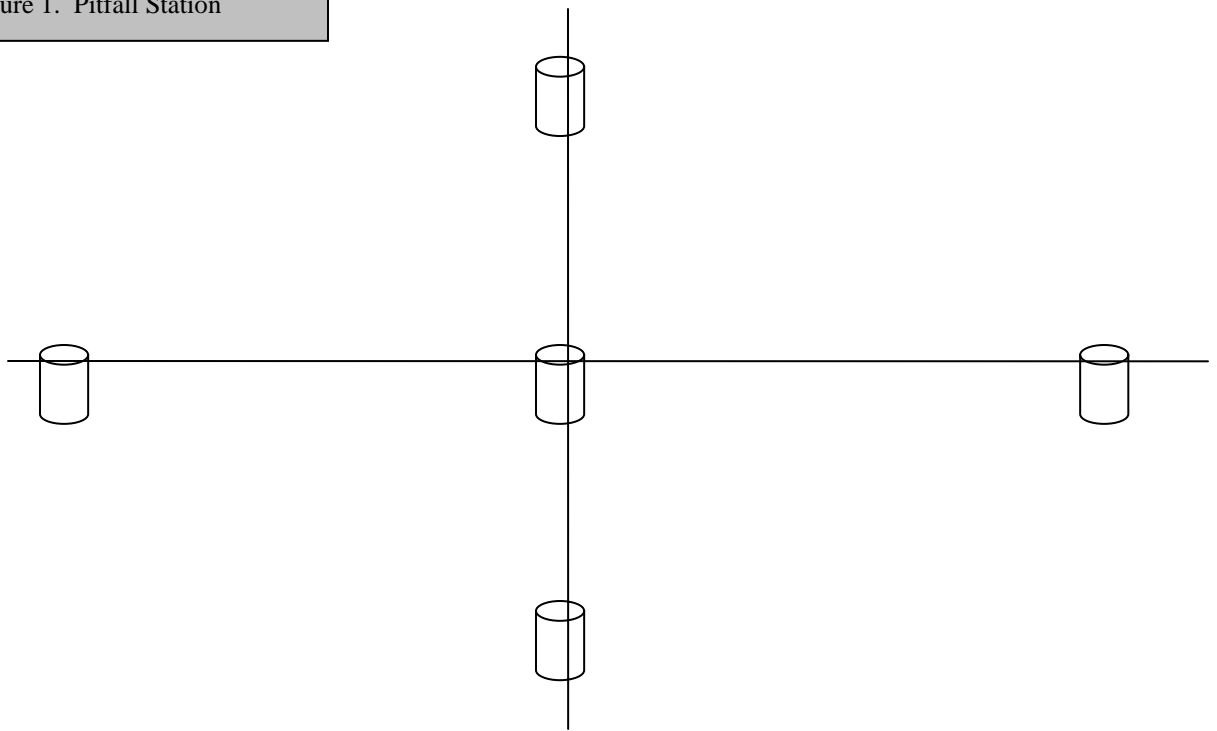
Post-Visit Report for MOUNT RUSHMORE NM Mammal Inventory
Small Terrestrial Mammal Inventory – Summer 2002

Mount Rushmore National Monument was surveyed for small, terrestrial mammals during the period from Monday, 29 July 2002 to Friday, 2 August 2002. Three pitfall stations were set in the park, two in mesic areas close to drainages and one in a more upland ponderosa pine habitat. These stations were run for four consecutive nights, from 29 July through the night of 1 August. Sherman live trap transects were established in five areas of the monument and run for 1 to 3 nights to provide a minimum of 1000 trap nights across the site.

Trapping Effort

Three pitfall stations (Figure 1), each consisting of five 4-gallon buckets and 20m of 10" fencing, were run for 4 consecutive nights, providing a total of 60 trap nights for pitfalls.

Figure 1. Pitfall Station



Sherman transects were established in five areas of the park and run for a variable number of nights. Transect #1 (80 traps) began at the shooting/stress range, and proceeded north, then east, and finally south to loop around and over a low rise in primarily ponderosa pine habitat. Transect #2 (80 traps) started just east of the road leading to the well pen, and proceeded downstream (roughly to the east). Transect #3 (80 traps) began next to the spring in the drainage below the burn pit and proceeded upslope in a northwesterly direction. These three transects were run for 3 nights, producing 720 trap nights.

Two more trap lines with single trap stations (20 traps per line) were run for one night in the upper reaches of Starling Gulch. These lines were reached by hiking down the horse trail from the construction area south of the Visitor's center to the stream running through the bottom of the Gulch. One line (Starling Gulch Lower) started at the beaver pond and proceeded downstream. The second line (Starling Gulch Upper) started approximately 50m upstream of the beaver pond and proceeded upstream. These lines provided 40 more trap nights.

Finally, two 20-trap lines were run for one night in the area north of the main visitor area. North Lower Draw was set in a lush drainage area (no running water, but quite mesic) approximately 200m up a very light trail leading from one of the pullouts. North Upper Draw was set in a higher elevation dry drainage just below the “No trespass beyond this tree” signs below and behind the fenced area at the top of the monument. These lines provided an additional 40 trap nights.

Total Sherman live trap nights for the entire site was 800.

Pitfall stations were proximal to transects as follows:

<u>Pitfall Station</u>		<u>Sherman Transect</u>
PF-1	upland pine	#1
PF-2	mesic/riparian	#2
PF-3	mesic/riparian	#3

Trapping Results

A Habitat / Trap Type Summary is provided below. Table 1 (a separate Excel attachment) provides detailed information about species and capture locations.

Mesic/Riparian Shermans¹

Tamias minimus -- 4
Peromyscus leucopus— 39
Peromyscus maniculatus—75
Clethrionomys gapperi – 9
Microtus pennsylvanicus – 4
Zapus hudsonius – 2

Upland Pine Shermans²

Sorex cinereus/haydeni – 2
Tamias minimus – 2
Peromyscus leucopus—6
Peromyscus maniculatus—6
Reithrodontomys megalotis -- 2

Mesic/Riparian Pitfalls

Sorex cinereus / haydeni—4
Reithrodontomys megalotis - 1
Clethrionomys gapperi – 2
Microtus pennsylvanicus -- 2

Upland Pine Pitfalls

Sorex cinereus/haydeni – 1
Clethrionomys gapperi -- 2

¹Includes Transects #2 and #3, as well as Starling Gulch Upper and Lower, and North Low Draw.

²Includes Transect #1 and North High Draw

Other Observations / Collections

White-tailed deer (*Odocoileus virginianus*) were observed north of the well pen.

Alphabetical List of Mammals Captured/Observed at Mount Rushmore

Clethrionomys gapperi – Red-backed vole
Microtus pennsylvanicus – Meadow Vole

Odocoileus virginianus – White-tailed Deer
Peromyscus leucopus – White-footed Mouse
Peromyscus maniculatus -- Deer Mouse
Reithrodontomys megalotis -- Western Harvest Mouse
Sorex cinereus / *haydeni* *-- shrew
Tamias minimus – Least Chipmunk
Zapus hudsonius – Meadow Jumping Mouse

* Identity to be confirmed after skull is cleaned.

COORDINATE S

Trapping Location*	Zone	UTM Easting	Northing
PF1	13T	0625360	4860638
PF-2	13T	0624647	4860065
PF-3	13T	0624765	4859188
#1	13T	0625360	4860638
#2	13T	0624647	4860065
#3	13T	0624765	4859188

*PF refers to PitFalls; #1-3 are the Sherman transects.

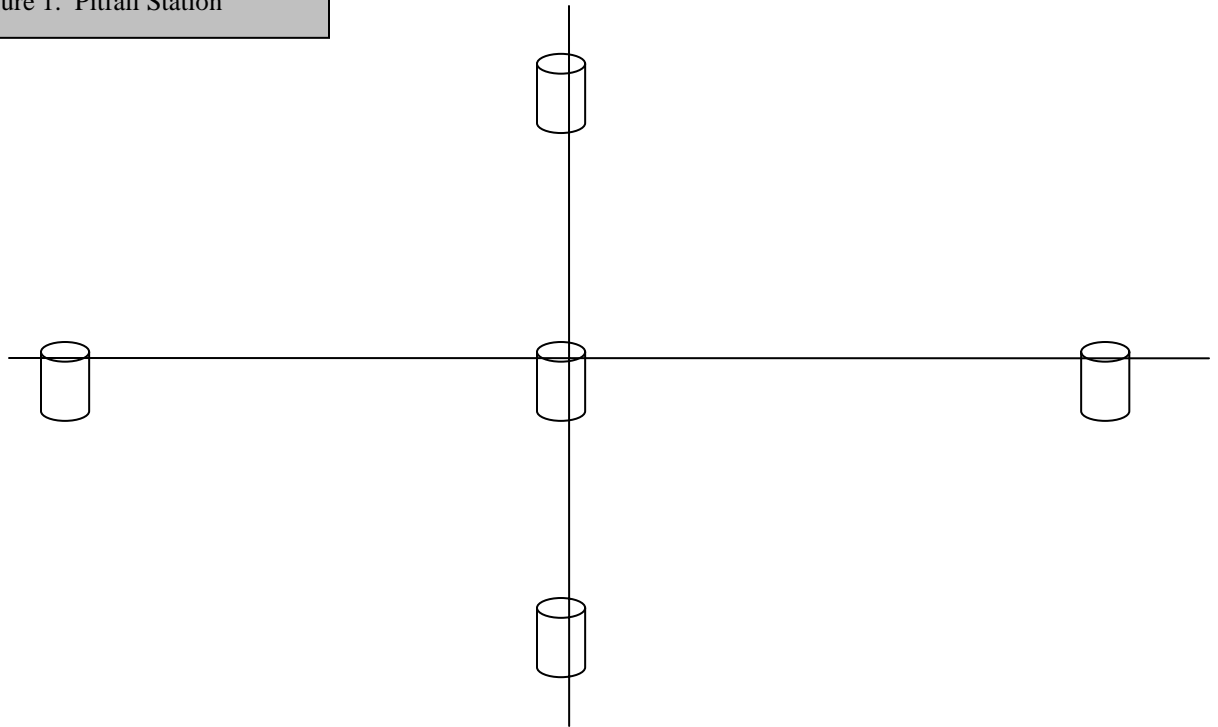
Post-Visit Report for SCOTTS BLUFF NATIONAL MONUMENT Mammal Inventory Small Terrestrial Mammal Inventory – Summer 2002

Scotts Bluff National Monument was surveyed for small, terrestrial mammals during the period from Wednesday, 11 September to Sunday, 15 September 2002. Three pitfall stations were set in riparian forest and grassland habitats as described in the inventory protocol, for a total of 6 pitfall stations. Sherman live trap transects were established in each of the primary habitats (badlands topography, riparian forest, and grassland) to provide a minimum of 500 trap nights per habitat (details below).

Trapping Effort

Three pitfall stations (Figure 1), each consisting of five 4-gallon buckets and 20m of 10" fencing, were run in each habitat for 4 consecutive nights, providing a total of 60 trap nights per habitat for pitfalls.

Figure 1. Pitfall Station



Pitfall stations were associated with Sherman transects (described below), or located independently, as follows:

<u>Pitfall Station</u>	<u>Sherman Transect</u>
PF-1 (grassland)	GRA-1 (south of prairie dog town)
PF-2 (grassland)	BL-1 (grassy area on slope of badlands topography; inside 1 st bow on Gering Canal Rd., east of Dobie Brick Rd)
PF-3 (riparian forest)	RIP-3 (outside of SE corner of 1 st bow in Gering Canal Rd that is E of Dobie Brick Rd)
PF-4 (riparian forest)	RIP-1 (transect started north of railroad tracks across from Dobie Brick Rd and proceeds ESE)
PF-5 (riparian forest)	RIP-2 (transect started about 100m west of culvert passage beneath railroad tracks at end of Dobie Brick Rd and proceeds NNW)
PF-6 (grassland)	GRA-3 (across highway and southeast of Visitor's Center, on top of slope)

Nine Sherman transects, three in each major habitat type (RIP=riparian forest, GRA=grassland, BL=badlands topography) were established as follows:

RIP-1 (80 traps) started at Pitfall Station #4, north of tracks across from Dobie Brick Rd and proceeded ESE (106°) in riparian woods between canal and railroad tracks.

RIP-2 (80 traps) started at Pitfall Station #5, about 100m west of culvert passage beneath railroad tracks at end of Dobie Brick Rd and proceeds NNW (along base of railroad track "bluff").

RIP-3 (40 traps) started at Pitfall Station #3, outside of SE corner of 1st bow in Gering Canal Rd that is E of Dobie Brick Rd, and proceeded SSE (145°) from pitfall.

GRA-1 (80 traps) started at Pitfall Station #1, south of prairie dog town off of Gering Canal Rd., and proceeded due south (180°).

GRA-2 (40 traps) along old 2-tracker past dump and going to old Boy Scout picnic grounds, W of Hwy 92 close to west edge of park.

GRA-3 (80 traps) started at Pitfall Station #6, across highway from and slightly SE of the Visitor's Center, and proceeded SE at 140°.

BL-1 (80 traps) started at dead juniper about 50m up the rise from Pitfall Station #2, proceeded down into badlands proper, north across small stream, and through willows along same stream.

BL-2 (40 traps) inside West edge of 1st bow in Gering Canal Rd, east of Dobie Brick Rd. Smack dab in middle of a rattlesnake's home range (we saw him/her every day).

BL-3 (80 traps) In Pine/Juniper badlands area at base of South Bluff near old Boy Scout Picnic ground, west of Hwy 92 close to west edge of park.

Total Sherman live trap nights for the monument was 2280.

Trapping Results

A Habitat / Trap Type Summary is provided below. Table 1 (a separate Excel attachment) provides detailed information about species and capture locations.

Riparian Forest Shermans

Microtus ochrogaster – 5

Microtus pennsylvanicus -- 3

Peromyscus maniculatus—24

Reithrodontomys megalotis -- 3

Coluber constrictor flaviventris (Eastern Yellow-bellied Racer) – 1

Grassland Shermans

Peromyscus maniculatus—12

Reithrodontomys megalotis -- 1

Microtus ochrogaster—2

Badlands Topography Shermans

Sorex cinereus/haydeni – 1

Peromyscus maniculatus—33

Microtus ochrogaster—7

Microtus pennsylvanicus—6

Mus musculus -- 1

Riparian Forest Pitfalls

Sorex cinereus / haydeni—2

Microtus spp. – 1 (too wet to ID; voucher – species to be determined after preparation).

Pseudacris triseriata triseriata (Western Chorus Frog) -- 1

Grassland Pitfalls

Sorex cinereus / haydeni—1

Scaphiopus bombifrons (Plains spadefoot toad) —1

Other Observations / Collections

Of course, prairie dogs (*Cynomys ludovicianus*) were observed in the prairie dog town off of Gering Canal Road. A large mule deer (*Odocoileus hemionus*) buck was observed several mornings in the buckbrush north of the railroad tracks as we came through the culvert underpass. Cottontail rabbits (*Sylvilagus spp*) were observed around the Visitor's Center and heard in brushy areas along the Gering Canal Road. A coyote was observed south of the prairie dog town. Three pronghorn (*Antilocapra americana*) were observed late on the evening of 11 September, right at dusk, just beyond the last draw SE of the visitors center before the large flat area between South Bluff and Dome Rock. Although we were

setting a pitfall and it got dark before we were able to return to the vehicle for binoculars to verify this sighting, we did hike to the area the next day and obtain pronghorn scat as verification.

Prairie rattlesnakes (*Crotalus viridis viridis*) were observed/photographed in riparian and badland areas south of the Gering Canal Road. A young bullsnake (*Pituophis melanoleucus sayi*) was observed/photographed in the prairie dog town.

Alphabetical List of Mammals Captured/Observed

Antilocapra americana -- Pronghorn
Cynomys ludovicianus -- Black-tailed Prairie Dog
Microtus ochrogaster -- Prairie Vole
Microtus pennsylvanicus -- Meadow Vole
Mus musculus -- Domestic mouse
Odocoileus hemionus -- Mule Deer
Peromyscus maniculatus -- Deer Mouse
Reithrodontomys megalotis -- Western Harvest Mouse
Sorex cinereus / *haydeni* **-- shrew
Sylvilagus spp-- Cottontail Rabbits

** Identity to be confirmed by after skull is cleaned.

Amphibians Captured/Observed

Crotalus viridis viridis -- Prairie rattlesnakes
Pituophis melanoleucus sayi -- Bullsnake
Scaphiopus bombifrons -- Plains spadefoot toad
Pseudacris triseriata triseriata -- Western Chorus Frog
Coluber constrictor flaviventris -- Eastern Yellow-bellied Racer

COORDINATE S

Trapping Location	UTM Zone	Easting	Northing
PF-1	13 T	0606609	4633767
PF-2	13 T	0608236	4633615
PF-3	13 T	0608216	4633290
PF-4	13 T	0607989	4634313
PF-5	13 T	0607824	4634287
PF-6	13 T	0607662	4631172
BL - 1	13 T	0608236	4633615
BL - 2	13 T	0608117	4633316
BL - 3	13 T	0606451	4631094
GRA - 1	13 T	0606609	4633767
GRA - 2	13 T	0606332	4631875
GRA - 3	13 T	0607662	4631172
RIP - 1	13 T	0607989	4634313
RIP - 2	13 T	0607824	4634287
RIP - 3	13 T	0608216	4633290

AGATE
FOSSIL
BEDS
MAMMAL
INVENTO
RY
SEPTEMB
ER 2002

SHERMA
NS

Grassland

Riparian

TAXA

	GRA-1	GRA-2	GRA-3	RIP-1	RIP-2	RIP-3	
MAMMALS							TOTALS:
<i>Spermophilus tridecemlineatus</i>	1						1
<i>Reithrodontomys megalotis</i>					1	3	4
<i>Peromyscus leucopus</i>				1			1
<i>Peromyscus maniculatus</i>	25	10	6	31	13	2	87
<i>Microtus ochrogaster</i>					3	3	6
<i>Chaetodipus hispidus</i>	2	1		4	3	2	12
<i>Dipodomys ordii</i>	1		12				13
<i>Perognathus flavus</i>			1				1
<i>Onychomys leucogaster</i>	1						1

Other Observed/Documented

Mammals:

Odocoileus hemionus

Odocoileus virginianus

Sylvilagus spp.

Canis latrans

Other Observed/Documented

Herps:

Phrynosoma douglassi

brevirostre

Comments/Observations:

Dipodomys ordii observed eating
mature russian thistle (*Salsola*
iberica) immediately after release
at G-3 on 17 Sept. '02.

**COORDIN
ATES**

Trapping Location	UTM Zone	Easting	Northing
GRA - 1	13 T	0601049	4696508
GRA - 2	13 T	0601810	4696803
GRA - 3	13 T	0601575	4697799
RIP - 1	13 T	0601234	4696754
RIP - 2	13 T	0601109	4696845
RIP - 3	13 T	0604538	4698029

**Table 1.
Devil's
Tower NM
Small
Mammal
Inventory
Summer
2002**

TAXA	Ponderosa a Pine (PON)			PITFALLS (PF) Grassland (GRA)			Riparian (RIP)			TOTAL
	PON-PF1	PON-PF2	PON-PF3	GRA-PF1	GRA-PF2	GRA-PF3	RIP-PF1	RIP-PF2	RIP-PF3	
MAMMALS										
<i>Sorex haydeni</i>		1					2	1	2	6
<i>Peromyscus leucopus</i>									2	2
<i>Peromyscus maniculatus</i>		1				2				3
<i>Zapus hudsonius</i>									2	2
HERPS										
<i>Ambystoma tigrinum</i>						1				1
<i>Scaphiopus bombifrons</i>					1					1
<i>Lampropeltis triangulum</i>									1	1

TAXA	Ponderosa a Pine (PP)		SHERMAN LIVE TRAPS Grassland (GRA)		Riparian (RIP)	Prairie Dog Town (PDT)

	PP-1	PP-2	PP-3	GRA-1	GRA-2	GRA-3	GRA-4	RIP-1	PDT	TOTAL
MAMMALS										
<i>Tamias minimus</i>							1			1
<i>Spermophilus tridecemlineatus</i>								5		5
<i>Reithrodontomys megalotis</i>					1					1
<i>Peromyscus leucopus</i>	4	5	3	2				8		22
<i>Peromyscus maniculatus</i>	6	9	3	10	1	9		3	3	44
<i>Neotoma cinerea</i>		12								12
<i>Microtus ochrogaster</i>						3		1		4
<i>Microtus pennsylvanicus</i>								4		4

Other Documented Mammals: *Sylvilagus*
floridanus,
Sylvilagus
nuttallii,
Cynomys
ludovicianus,
Tamiasciurus
hudsonicus,
Mustela
vison,
Lynx
rufus,
Odocoileus
virginianus

COORDINATES

Trapping Location	Zone	UTM Easting	UTM Northing
PON-PF1	13T	0521479	4938318

PON-PF2	13T	0522416	4937970
PON-PF3	13 T	0521895	4937760
GRA-PF1	13T	0522102	4938360
GRA-PF2	13 T	0523690	4937491
GRA-PF3	13 T	0522013	4936410
RIP - PF1	13 T	0521859	4938033
RIP -PF 2	13 T	TO BE	ACQUIRE D
RIP - PF3	13 T	TO BE	ACQUIRE D
PP-1	13 T	0521479	4938318
PP-2	13 T	0522823	4938354
PP-3	13 T	0521895	4937760
GRA-1	13 T	0521559	4938344
GRA-2	13 T	0522819	4938400
GRA-3	13 T	0522013	1936410
GRA-4	13 T	0523690	4937491
RIP-1	13 T	TO BE	ACQUIRE D

**Table 1. Fort Union Trading
Post NHS Mammal Inventory
August T 2002**

**PITFALLS
(PF)**

Grassland

Riparian

TAXA

	PF-1	PF-2	PF-4	PF-3	PF-5	PF-6	TOTAL
MAMMALS							
<i>Sorex cinereus/haydeni</i>	2	2		8	4	4	20
<i>Blarina brevicauda</i>						1	1
<i>Perognathus fasciatus</i>			1				1
<i>Peromyscus maniculatus</i>						2	2
<i>Clethrionomys gapperi</i>				4	1	5	10
<i>Microtus pennsylvanicus</i>		1		1	7	3	12
<i>Mus musculus</i>				1		1	2
<i>Zapus hudsonius</i>		1					1
HERPS							
Unknown frog (voucher)				1			1
Plains Spadefoot Toad						1	1
Western Chorus Frog						1	1
Northern Leopard Frog			1			1	

**SHERMAN
NS**

Grassland
(G)

Riparian
(RIP)

TAXA

	G-1	G-2	G-3	G-4	G-5	G-6	RIP-1	RIP-2	RIP-3	TOTAL
MAMMALS										
<i>Sorex cinereus/haydeni</i>							3	1	1	5
<i>Blarina brevicauda</i>	2						1			4

<i>Spermophilus tridecemlineatus</i>		7	8	4	2	2				23
<i>Spermophilus richardsonii</i>						2				2
<i>Perognathus fasciatus</i>					1			2		1
<i>Reithrodontomys megalotis</i>	2						5			7
<i>Peromyscus leucopus</i>	4						10	20	24	58
<i>Peromyscus maniculatus</i>	1	11	21	6	8	2	8	17	14	88
<i>Onychomys leucogaster</i>					1	3				4
<i>Clethrionomys gapperi</i>		1					8	26	27	62
<i>Microtus pennsylvanicus</i>	4						1	11		16
<i>Mus musculus</i>			1							1

**COORDIN
ATES**

Trapping Location	UTM Zone	Easting	Northing
GRA - PF1	13 T	0572286	5316367
GRA - PF2	13 T	0572424	5316215
GRA - PF4	13 T	0572170	5316836
GRA - PF3	13 T	0572425	5316171
GRA - PF5	13 T	0571141	5316769
GRA - PF6	13 T	0571151	5316725
GRA - 1	13 T	0572424	5316214
GRA - 2	13 T	0572402	5316299
GRA - 3	13 T	0572379	5316366
GRA - 4	13 T	0572268	5316478
GRA - 5	13 T	0572170	5316836
GRA - 6	13 T	0571827	5317802
RIP - 1	13 T	0572425	5316171
RIP - 2	13 T	0571151	5316725
RIP - 3	13 T	0571151	5316725

KNIFE
RIVER
MAMMAL
INVENTO
RY
AUGUST
2002

SHERMA
NS

Grassland
(G)

Riparian
(RIP)

TAXA

	G-1	G-2	G-3	G-4	G-5	RIP-1	RIP-2	RIP-3	
MAMMALS									
<i>Sorex cinereus/haydeni</i>			2				2		4
<i>Blarina brevicauda</i>								2	2
<i>Spermophilus tridecemlineatus</i>	2		8						10
<i>Peromyscus leucopus</i>		4		4		30	17	32	87
<i>Peromyscus maniculatus</i>	1	4	3	2	7	13		3	33
<i>Clethrionomys gapperi</i>							17	5	22
<i>Microtus pennsylvanicus</i>			1				1		2
<i>Zapus hudsonius</i>				1		5		1	7

Other Documented Mammals: none at
this time

COORDIN
ATES

Trapping Location	UTM Zone	Easting	Northing
G - 1	13 T	0319576	5249529
G - 2	13 T	0319699	5249352

G - 3	13 T	0319517	5247927
G - 4	13 T	0319835	5246114
G - 5	13 T	0319909	5249764
RIP - 1	13 T	0320717	5244964
RIP - 2	13 T	0319895	5248176
RIP - 3	13 T	0319663	5249937

**Mt.
Rushmore
Mammal
Inventory
August 2002**

Pitfalls
(PF)

TAXA	PF-1	PF-2	PF-3	TOTAL
<i>Sorex cinereus/haydeni</i>	1	1	3	5
<i>Reithrodontomys megalotis</i>			1	1
<i>Clethrionomys gapperi</i>	2		2	4
<i>Microtus pennsylvanicus</i>			2	2

Sherman
s

TAXA	#1	#2	#3	Starling Gulch Lower	Starling Gulch Upper	North Low Draw	North High Draw	TOTAL
<i>Sorex cinereus/haydeni</i>	2							2
<i>Tamias minimus</i>	1		4				1	6
<i>Reithrodontomys megalotis</i>	2							2
<i>Peromyscus leucopus</i>	4	16	15	2	4	2	2	45
<i>Peromyscus maniculatus</i>	6	58	15	1		1		81
<i>Clethrionomys gapperi</i>		6	2			1		9
<i>Microtus pennsylvanicus</i>			1	3				4
<i>Zapus hudsonius</i>		1			1			2

**COORDI
NATES**

Trapping

UTM

Location	Zone	Easting	Northing
PF1	13T	0625360	4860638
PF-2	13T	0624647	4860065
PF-3	13T	0624765	4859188
#1	13T	0625360	4860638
#2	13T	0624647	4860065
#3	13T	0624765	4859188

SCOTT'S
BLUFF
MAMMAL
INVENTORY
SEPTEMBER 2002

PITFALLS
(PF)

TAXA	Grassland (GRA)			Riparian (RIP)			TOTALS:
	PF1	PF2	PF6	PF3	PF4	PF5	
MAMMALS							
<i>Sorex haydeni/cinereus</i>	1				1	1	3
<i>Microtus spp.</i>					1*		1
HERPS							
<i>Pseudacris triseriata triseriata</i>					1		1
<i>Scaphiopus bombifrons</i>			1				1

*Found in
Riparian
Pitfall; too
wet to
identify.

SHERMAN
NS

TAXA	Badlands			Grassland			Riparian			
	BL-1	BL-2	BL-3	GRA-1	GRA-2	GRA-3	RIP-1	RIP-2	RIP-3	
MAMMALS										TOTALS:
<i>Sorex haydeni/cinereus</i>	1									1
<i>Reithrodontomys megalotis</i>						1	2	1		4
<i>Peromyscus maniculatus</i>	5	10	18	3	1	8	3	1	20	69
<i>Microtus ochrogaster</i>	3	2	2	2			1	4		14

<i>Microtus pennsylvanicus</i>	6						3			9
<i>Mus musculus</i>		1								1
HERPS										
<i>Coluber constrictor flaviventris</i>							1			1

Other Observed/Documented

Mammals:

Cynomys ludovicianus

Antilocapra americana

Visual
observation
during pitfall
setting; later
collected
scat typical
of
pronghorns
in the area
where the
animals
were
observed.

Odocoileus hemionus

Canis latrans

Sylvilagus spp.

Other Observed/Documented

Herps

Crotalus viridis viridis

Pituophis melanoleucus sayi

COORDINATES

<u>Trapping Location</u>	<u>UTM Zone</u>	<u>Easting</u>	<u>Northing</u>
PF-1	13 T	0606609	4633767
PF-2	13 T	0608236	4633615
PF-3	13 T	0608216	4633290
PF-4	13 T	0607989	4634313
PF-5	13 T	0607824	4634287

PF-6	13 T	0607662	4631172
BL - 1	13 T	0608236	4633615
BL - 2	13 T	0608117	4633316
BL - 3	13 T	0606451	4631094
GRA - 1	13 T	0606609	4633767
GRA - 2	13 T	0606332	4631875
GRA - 3	13 T	0607662	4631172
RIP - 1	13 T	0607989	4634313
RIP - 2	13 T	0607824	4634287
RIP - 3	13 T	0608216	4633290